ANNUAL REPORT

of the

HYDROGRAPHER

of the

UNITED STATES NAVY

for fiscal year

1952

H. O. MISC. 15711

TABLE OF CONTENTS

MISSION

The mission of the Hydrographic Office is to collect, evaluate, compile, produce, and distribute accurate and timely hydrographic, oceanographic, and aeronautical information, including nautical and aeronautical charts, sailing directions, naval air pilots, and related charts and publications calculated to afford the maximum possible navigational safety and facility to vessels of the Navy and merchant marine, and to naval aircraft operating over areas of strategic interest to the Navy.

To produce special charts and related publications for use of the Navy and its operating forces, for training and operational purposes, including those specifically designed for amphibious, air, and undersea warfare. To produce special hydrographic, oceanographic, and aeronautical charts and related data in cooperation with the Army and Air Force to meet the requirements of the Joint Chiefs of Staff in support of war plans. To serve as the Navy Department repository of record of technical source material relating to hydrographic and oceanographic matters and as the principal agency of the Navy Department to administer, regulate, and manage the exchange of such material with the Army Map Service, the Aeronautical Chart and Information Center, the Coast and Geodetic Survey, and other departments and agencies of the Government as appropriate.

PLANNING

Going into the second year of the emergency conditions created by the Korean hostilities and the continuing "cold war", the U. S. Navy Hydrographic Office found its production facilities taxed as new demands arose for nautical, aeronautical, and oceanographic charts, publications, and special products. Planning and scheduling of normal routine operations had to be flexible enough to permit answering crash demands and to accommodate changes in long range preparations for mobilization.

Shore bombardment, minesweeping operations, readiness for amphibious operations, tactical air support missions, submarines and antisubmarine warfare all create demands for special graphic and textual material on the hydrography, topography, and oceanography of the theater of operations, in addition to the shifting emphasis on normal routes of surface navigation and main cargo carrying sea routes. Definite immediate requirements from fleet commanders had to be integrated with long range plans for improved world coverage. Crystallizing NATO planning and closer coordination of participating nations in providing required charts for war readiness and for peacetime exercises such as MAINBRACE imposed additional workloads on the Office.

As the number of products increased and the Hydrographic Office also took over the increasing distribution of Army maps to naval commands, provision of the necessary logistic pipelines to place charts and publications at the disposal of the user, both naval and commercial, assumed increased importance. Considerable attention was devoted to study and planning for increased efficiency in the stocking and distributing of Hydrographic Office products.

Plans for current and future hydrographic and oceanographic surveys to be accomplished by the survey vessels under the technical control of the Hydrographer were reviewed in the light of changing priorities of effort, and requirements were generated for the accompanying aerial mapping photography to be accomplished by naval photographic squadrons.

Increasingly closer liaison was developed between the Plans and Operations Office at the Hydrographic Office and planning offices under the Chief of Naval Operations as well as with the Air Force's Aeronautical Chart and Information Center, the Army Map Service, and the Coast and Geodetic Survey.

Plans for the stockpiling of charts and publications and for emergency measures to be undertaken in the event of mobilization were kept under scrutiny as the initial goal of providing basic mobilization

stocks was achieved. Machinery was set in operation to provide more accurate demand figures for the current utilization of charts and publications, adopting procedures developed and proved in the Navy's renowned supply system.

Expanded production, increased attention to cost-consciousness, and a continuing difficulty in recruiting technically qualified personnel called for careful attention to more efficient utilization of available manpower and materials and development of work measurement standards. At the same time planning and studies of space utilization were required, and efforts were begun to acquire additional building space and facilities.

The close of fiscal year 1952 saw the Hydrographic Office better prepared to perform its mission to the fleet and to the merchant marine while at the same time more conscious than before that its work is never done and that its functions and services are vital to the war and peacetime operations of navigators on, under, and over the three-quarters of the earth's surface covered by the oceans.

COLLECTION OF INFORMATION

The survey fleet of the U. S. Navy consists of two Hydrographic Survey Groups, each composed of three ships, and one Oceanographic Survey Unit, composed of two ships.

During fiscal year 1952, Hydrographic Survey Group Two (U. S. S. *Tanner*, U. S. S. *Pursuit*, U. S. S. *Requisite*) participated in two extended surveys, spending the summer season in the Arctic and the winter season near the Bahama Islands.

Information concerning Arctic waters was needed urgently to assist in the transportation of supplies and equipment for the construction of an air base at Thule, Greenland. Hydrographic Survey Group Two was in the first element of the Task Force on this expedition, preceded only by icebreakers. Conducting speedy surveys under adverse weather conditions, these ships were able to supply later arrivals with the necessary navigational information for anchoring and unloading of cargo. The value of a helicopter in survey operations was again proved as it permitted the transportation of personnel and equipment to remote locations on the rugged terrain in an economical and expeditious manner.

Throughout the remainder of the warm weather, Group Two conducted further surveys in the Labrador-Davis Strait area. During the winter months, it resumed its survey near the Bahama Islands to determine the route for an underwater communication cable.

In the spring, Group Two returned to Greenland. Information was obtained there to bring up to date and supplement that gained during the previous summer.

Hydrographic Survey Group One (U. S. S. *Maury*, U. S. S. *Allegheny*, U. S. S. *Stallion*) spent their entire season in continuance of a 3-year survey in the Persian Gulf, another inadequately charted area. With the development of the petroleum industry in the Persian Gulf area, there has been a significant increase of shipping, particularly tankers. This survey will make possible the production of reliable nautical charts, which will increase the safety and facility of navigation in these waters.

Upon their return to the United States, the *Allegheny* and *Stallion* of Group One were replaced by the U. S. S. *Prevail* and U. S. S. *Sheldrake*. These new additions to the survey fleet are former minesweeper class vessels, converted for survey duty during 1952.

The Oceanographic Survey Unit (U. S. S. *San Pablo* and U. S. S. *Rehoboth*) continued its mid-ocean investigations of oceanographic conditions. Of popular interest were the deep water samples obtained, which were determined by the Carbon 14 method to have left the ocean's surface about 1600 years ago.

Similar investigations also were conducted by other naval activities and civilian institutions under contract. The information thus obtained was forwarded to the Hydrographic Office for compilation.

In this respect, the long-term project for establishing the Hydrographic Office as a repository for worldwide oceanographic data was materially advanced by the development of means for machine calculation of sound velocities, water densities, and dynamic heights (water pressure levels). Manual tabulation had become an almost impossible task as information poured in from numerous and varied sources.

In collaboration with the U. S. Coast and Geodetic Survey, other Government agencies, and civilian institutions, the Hydrographic Office continued conducting special surveys and studies of harbors in the United States.

Nine Loran-equipped merchant tankers obtained new information concerning the long baffling Gulf Stream. Results of this survey, when coupled with the results of a multiple ship survey conducted in 1951, indicate that the Gulf Stream does not follow the relatively straight, uninterrupted path shown on most charts. Instead, it appears to be filled with twists and turns similar to the bends of a river on land. This knowledge is of great value to ships attempting to utilize these currents while steaming northward and to avoid them while heading south.

Meteorologists and oceanographers made frequent ice reconnaissance flights over Baffin Bay and Davis Strait throughout the duration of the naval expeditions to Greenland. Their observations were summarized at the Hydrographic Office and broadcast to the Task Force at sea. During operations in the spring of 1952, ice summary charts were also prepared to supplement the textual descriptions and ice predictions broadcast by radio. These charts were transmitted by facsimile, the first usage of this medium for the dissemination of ice charts to naval vessels. Its use made possible the graphic presentation of timely information which proved effective in guiding the Task Force through the tightly packed and treacherous Arctic ice.

Field observers accompanied naval and Coast Guard vessels on expeditions to resupply far-northern weather stations. Other personnel were loaned to various commands to assist in special projects. Although the information they obtained was utilized almost immediately by the requesting command, it also was forwarded to the Hydrographic Office so that it might eventually benefit all navigators.

The navigators who profit from the work of the Hydrographic Office continued to return the service by forwarding observations and soundings. More than 1 million miles of soundings were reported by ships of the fleet and merchant marine. Over 6,000 other reports were received concerning ocean currents, marine data, port facilities, and shipping routes.

The Navy's 2 aerial photographic squadrons (VJ-61 and VJ-62) forwarded approximately 24,000 aerial photographs. These will be utilized in the presentation of topographic information on both nautical and aeronautical charts.

Approximately 35,000 other reports of aeronautical information, including lengthy research survey reports and technical reports, were collected and evaluated.

Eight hundred new foreign charts were added to the Hydrographic Office chart depository this year, bringing the total number of different foreign charts on file to 26,000. To encourage further exchanges of information and greater standardization of compilation, visits were made to foreign hydrographic offices. A delegation also attended the Sixth International Hydrographic Conference in Monaco. A strong indication of the good will of the other maritime nations attending this conference was the election of a retired United States naval officer, Rear Adm. Chester L. Nichols, to a 5 year term as President of the Directing Committee of the International Hydrographic Bureau. Rear Admiral Nichols formerly was Deputy Hydrographer of the U. S. Navy Hydrographic Office.

With such sources of information increasing in scope and number, the Hydrographic Office is gradually filling the gaps in its chart coverage of the world. Plans for the future include, in addition to regular programs, magnetic observations by aircraft equipped with magnetometers and gravity surveys on both land and sea.

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PRODUCTION

More charts and publications were produced by the Hydrographic Office during fiscal year 1952 than in any year since World War II. At the same time, considerable savings were effected through greater utilization of manpower and materials.

In the field of nautical charting, the Hydrographic Office now has more than 4,000 standard nautical charts on issue. These include ocean charts for use on the open sea, coastal charts for coastwise cruising, and harbor charts for entering and leaving port.

Outstanding progress was made in the effort to replace foreign charts depicted in foreign symbolization and different units of measurements. One hundred eighteen new charts or new editions of charts were constructed to replace foreign charts now on special issue to the fleet.

A special isogriv chart was prepared for grid navigation, and a new edition, the eighteenth, of the Time Zone Chart of the World was published in January, 1952.

Many new articles were published on the backs of the regular monthly and quarterly Pilot Charts. The principal ones of interest were the "Tanker Survey of the Gulf Stream," "Stream Drift Chart of the World," and "Load Lines for American Vessels."

Oceanographic charts published included Current charts, showing the mean direction and force of surface currents, and Surface Temperature charts.

Production of aeronautical charts kept pace with established schedules but only through the utilization of personnel on a two-shift basis, and the contracting of work to the Coast and Geodetic Survey, Forest Service, and civilian firms.

There are now more than 150 Hydrographic Office aeronautical charts on issue, including long-range aeronautical planning charts, larger scale charts showing topographic and aeronautical information, North Polar charts for polar navigation, and a special series showing air facilities, airline distances, and air traffic control areas.

Production of Approach and Landing charts was coordinated with the Air Force so that the Hydrographic Office produces only the seaplane charts while the Air Force produces the landplane charts. This has resulted in considerable savings of manpower and money, and conforms to the policy of eliminating duplication of effort among the individual services.

The first Air Surveillance chart for use by lighter-than-air craft was produced this year and included in the Naval Airways Pilot.

Approximately 100 Loran charts are now on issue. These are pre-

pared by overprinting Loran lines of position on both nautical and aeronautical charts.

Total chart production for the year was 16.1 million copies, topping the 1951 total by more than 2.7 million copies.

In the nautical publications field, the program of converting the 60 volumes of Sailing Directions to the new loose-leaf format received the most emphasis. Approximately 30 volumes are on issue in the new form. The remaining volumes, which are in various stages of printing, will be available for distribution early in fiscal year 1953. The majority of the new sailing directions are reprints of previous editions, but seven volumes are new compilations, complete with port plans, graphic indices, and other new features.

A World Port Index is in preparation and is scheduled to go to press in fiscal year 1953. This publication will list major ports of the world and present detailed information concerning facilities available at each port.

Stock shortages necessitated the advancement of completion schedules for several publications and manuals. Light Lists Volumes IV, V, and VI were prepared 6 months ahead of schedule. One volume of the revised Tables of Computed Altitude and Azimuth has been printed and seven others are in press.

Oceanographic publications on issue include various atlases of oceanographic charts, and manuals such as Breakers and Surf, Principles in Forecasting; Methods for Locating Survivors Adrift at Sea on Rubber Rafts; Wind Waves at Sea, Breakers and Surf; and Processing Oceanographic Data.

All commitments were met for the two joint aeronautical publications, the USAF/USN Pilot's Handbook and the USAF/ONI Airfields and Seaplane Stations. One volume of the new series of Sight Reduction Tables for Air Navigation was printed and 2 additional volumes are in press. A revision to the Racon (Radar Beacon) Coverage publication was produced under contract by a private concern.

New Loran station installations and changes necessitated computation of five standard Loran rates, and the preparation and printing of five volumes of Loran Tables. Computation of four volumes of Loran Lattice Tables is underway.

More than 3.6 million copies of publications, including special program texts, were printed during fiscal year 1952. This represented a large increase over the less than 1.1 million copies published during fiscal year 1951.

Products requiring corrections were kept up to date by the issuance of supplements, changes, periodical publications, bulletins, memoranda, and by radio broadcasts.

Information concerning immediate hazards to both nautical and aeronautical navigation was prepared for broadcast immediately upon

receipt. Approximately 2,000 nautical and 3,000 aeronautical messages were broadcast during the year.

To supplement nautical charts and publications, more than 2.5 million copies of periodicals were produced. The periodicals included the Notice to Mariners, Daily Memorandum, and Hydrographic Bulletin.

Aeronautical publications were kept timely by the production of more than 111 thousand copies of aeronautical periodicals.

An investigation was started on the treating of charts to increase their lasting qualities when subjected to repeated erasing, folding, removing of grease, pencil markings, moisture, and other deteriorating conditions. Experiments also continued on color contrasts and color combinations for use in daylight and under red light.

Loran computing on high speed electronic equipment received further study and improved techniques were developed and proved. A study was made of the accuracy obtainable from Loran fixes in all areas of coverage. To investigate the accuracy and usability of products concerning Loran, a representative of the Office participated in an extended Loran research flight.

A major change in the nautical chart correction procedure was inaugurated, preventing duplication of effort in the Hydrographic Office and Hydrographic Distribution Offices. By this new method, hand corrections are plotted on only one single standard copy of each nautical chart. Inexpensive diazo copies of the corrected standard are forwarded to each of the Hydrographic Distribution Offices as guides for the correction of stock copies, while another copy serves in the correction of printing plates.

Installation of diazo-type equipment aboard aircraft carriers permits the reproduction of charts aboard ship. It was thought originally that 200 film copies of each chart would be required for use as reproduction masters, but after much experimentation, it was found that by using brown or sepia ink, satisfactory diazo masters could be obtained on tracing paper. This type of master was approved by the users who welcomed a paper master in lieu of the "hard to handle" film positives. Certain multicolored charts are now being printed in only one color so that they, too, can be reproduced with diazo-type equipment aboard ship.

In the photo-lithography field, camera exposures are now being controlled electronically, eliminating failures due to variations in intensity of light. Ink agitators, water fountain levelers, and roller cleaning machines have all been obtained to facilitate press operations.

Numerous improvements in the utilization of manpower, materials, and money were effected during 1952. These resulted in substantial savings and are expected to achieve even greater savings during future operations. Each operation eliminated also allowed more time for concentration on priority projects.

DISTRIBUTION

Procedures and methods of distributing Hydrographic Office products were completely revamped during 1952. Prior to this year, distribution of products was handled by the Hydrographic Office itself, with limited assistance from 22 Branch Hydrographic Offices, 2 Air Navigation Offices, and approximately 100 commercial sales agents.

Throughout the past 3 years, preparations have been under way to activate new Hydrographic Distribution Offices and Air Navigation Offices which would assume the distribution of charts and publications under the technical direction of the Hydrographer.

On 1 March, the first Hydrographic Distribution Office was activated at the Naval Supply Depot, Clearfield, Ogden, Utah. All western continental and Pacific commands were notified that this new Office would service their requests for navigational charts and publications.

The second Hydrographic Distribution Office was activated at the end of the fiscal year at the Naval Supply Depot, Scotia, N. Y. This Office will service eastern continental, Atlantic, and Mediterranean commands.

These Hydrographic Distribution Offices are supplied with large bulk stocks of navigational charts and publications by the Hydrographic Office. They in turn initiate direct shipments to the fleet and render supply support to Branch Hydrographic Offices, Air Navigation Offices and Hydrographic Office sales agents.

Six new Air Navigation Offices were added to the two already operating in a limited capacity. By the end of the fiscal year, all eight were fully stocked to supply air navigational requirements of naval aviation units within their own particular areas of operation.

The Air Navigation Offices are located at Atsugi, Japan; Guam, Marianas Islands; Barbers Point, Hawaii; San Diego, Calif.; Alameda, Calif.; Seattle, Wash.; Norfolk, Va.; Quonset Point, R. I. A ninth Air Navigation Office is now under construction at Port Lyautey, French Morocco, and should be ready for activation in fiscal year 1953.

The 16 coastal and overseas Branch Hydrographic Offices have been expanded and stocked to render maximum service as local distribution agencies for all charts and publications required by any mariner. These are located at San Juan, P. R.; Honolulu, Hawaii; Yokohama, Japan; Cristobal, C. Z.; Boston, Mass.; New York, N. Y.; Philadelphia, Pa.; Baltimore, Md.; Norfolk, Va.; Savannah, Ga.; New Orleans, La.; Galveston, Tex.; Wilmington, Calif.; San Francisco, Calif.; Portland, Oreg. The Branch Hydrographic Offices at ports on the Great Lakes will continue to carry limited stocks of charts and publications. These

are located at Detroit, Mich.; Duluth, Minn.; Sault Ste Marie, Mich.; Chicago, Ill.; Cleveland, Ohio; and Buffalo, New York.

Since the Hydrographic Office in Suitland, Md., will carry only reference copies of its products, the Hydrographic Liaison Office in the Pentagon has been provided a larger stock of charts and publications for the convenience of the various departments of the military establishment and other Government agencies in the Washington, D. C., vicinity.

A new organization, the Distribution Control Office, has been established to integrate inventory control procedures in all activities of the Hydrographic Office distribution system.

The new distribution procedures resulted from staff studies at the Hydrographic Office which indicated that adoption of this system would provide dispersal of the Navy's supply of navigational charts and publications, release needed space and personnel for production, bring the point of issue of navigational materials nearer units of the fleet and merchant marine, and integrate the distribution of Hydrographic Office products with the distribution of other logistic commodities already provided by the naval supply system.

Throughout the switchover to the new distribution system, the previous system was kept active to insure that all requirements were met fully. Chart and publication issues during 1952 were at the highest peak since World War II, averaging over 1 million charts per month.

On 1 January 1952, a new allowance list of Hydrographic Office charts and publications for vessels assigned to the Atlantic and Pacific Fleets, and a revised portfolio system became effective. The new allowance reduced the number of charts each ship was required to carry and eliminated the duplicate copies sometimes necessary under the old portfolio system. The revised portfolios contain fewer charts, easing the handling and storage problem aboard ship.

ADMINISTRATION AND MANAGEMENT

The increased productive effort of the Hydrographic Office demanded a corresponding increase in administrative and management services within the Office. Emphasis was necessarily placed on expanding supply and fiscal support, industrial relations functions, and administrative services.

Directly related to the adoption of the new distribution system and the growth of the Office was the increase in volume of material received and shipped by the supply organization. An average of 2,000 short tons of material was handled per month, more than doubling the 1951 average.

Near the end of the fiscal year, work began on an addition to the Hydrographic Office building to provide additional space for the receiving and shipping of supplies and finished products. Plans to improve a situation inherent in the original floor plan of the building occupied by the Hydrographic Office were formulated to allow for a smooth flow of work in process from the press room to the shipping platforms. This improvement, designed to eliminate double handling, will come with the completion of the Butler-type building during fiscal year 1953.

Supply items necessary for the operation of the Office and its field activities were processed at a rate of 20,000 line items per month, as opposed to the 1951 monthly average of 10,000 items. In this regard, the local supply catalog, introduced in 1951, proved effective as a guide for the ordering of supplies. A revision to this catalog was prepared and distributed, bringing it up to date and incorporating many new features.

The financial structure of the Office, together with its basic fiscal procedures, was streamlined through increased application of machine accounting methods. High speed electronic computation of civilian payrolls shortened the time of manual computation by 75 percent. Sales billing procedures were thoroughly revised resulting in improved protection of Government materials and faster collection of outstanding sales accounts.

The work measurement program data accumulated aided in formulating plans for efficient utilization of manpower and equipment. Personnel were transferred to functional areas where their services were utilized more effectively as a result of this program.

In order to place greater emphasis on the recruitment and training of personnel needed to meet the challenge of increased production, a separate department, Industrial Relations, was established under the direction of a line officer of the Navy. Under this reorganization,

specific programs were established to cover the functions of employee relations and services, employment, trainee employee development, and safety and accident prevention. Recruiting efforts were successful in hiring a total of 590 employees, bringing the on board count of civilian employees to 1,643.

The Administrative Division of the Supply, Fiscal and Administrative Department, accelerated its activities to provide for improved telephone service, improved parking facilities and regulations, and efficient correspondence routing. Special inspections program was instituted. This enabled further improvements in safety, including fire and civilian defense, as well as security and general improvement of working conditions.

Improvements to business management methods are constantly being sought and studied. The steps taken during 1952 played an important part in the successful establishment of new systems, methods and organizations which will speed the flow of navigational information to the users—the navigators traveling on, below, and above the surface of the oceans.

APPENDIX I

COOPERATING ORGANIZATIONS

INTERNATIONAL ORGANIZATIONS

Commission on Cartography, Pan American Institute of Geography and History.
Committee on Weather Ships, Association of Physical Geography of the Oceans.
International Conference on Safety of Life at Sea.
International Hydrographic Bureau, Monaco.
International Maritime Consultive Organization.
International Union of Geodesy and Geophysics.

GOVERNMENT AGENCIES

Air Force Aeronautical Chart and Information Center.
Army Engineer Corps.
Army Map Service.
Central Intelligence Agency.
Civil Aeronautics Administration.
Coast Guard, Treasury Department.
Coast and Geodetic Survey, Department of Commerce.
Forest Service, Department of Agriculture.
Geological Survey, Department of Interior.
Lake Survey Office.
Military Air Transport Service.
Military Sea Transport Service.
Weather Bureau, Department of Commerce.

SCIENTIFIC AND PROFESSIONAL SOCIETIES

American Congress on Surveying and Mapping.
American Geographical Society.
American Geophysical Union.
American Society of Photogrammetry.
Association of American Geographers.
Institute of Coastal Engineering.
Institute of Navigation.
Lithographic Technical Foundation.
National Association of Photo-Lithographers.
Society of Limnology and Oceanography.

APPENDIX ii

DISTINGUISHED FOREIGN VISITORS

Brazil

Colonel Lannes Jose Bernardes, Jr.
Colonel Jacinto Dulcardo Moreira Lobato
Colonel Luiz Agapito da Veiga
Lt. Colonel Carlos de Morais
Major Antonio da Silva Araujo

Canada

Mr. R. J. Fraser, Dominion Hydrographer

Colombia

Dr. Clemente Garavito, Instituto Geografico Militar

Finland

Mr. Kalevi A. Kirvesniemi, General Survey Office of Finland

France

Colonel George Laclavere, Director, Institute Geographique National

Italy

Captain Luca Goretti de Flamini, Italian Naval Attaché
Professor Antonio Marussi, Instituto Geografico Militare

Japan

Dr. Koji Hidaka, Professor of Physical Oceanography

Mexico

Alfonso Vaca Alatorre, Map Editor, Military Geographic Institute of Mexico
Manuel Medina Peralta, Geodesist, Chairman of the Committee on Geodesy, Pan American Institute of Geography and History

Thailand

Rear Admiral Liang Jholdham Brudhikrai, Hydrographer
Captain Jiam Amrapala, Chief of Section of Maritime Security
Lt. Amporn Penyapol

APPENDIX III

PRODUCTION SUMMARY

CHARTS	Items	Copies
Nautical	4, 620	7, 857, 190
Aeronautical	381	2, 105, 485
Special Air	2, 591	5, 215, 415
Oceanographic	131	361, 328
Special Charts for Other Bureaus	247	565, 865
Total	**7, 970**	**16, 105, 283**

PUBLICATIONS*		
Nautical	177	663, 242
Aeronautical	316	291, 581
Oceanographic	59	51, 922
Special Air	1, 919	2, 671, 923
Special Pubs for Other Bureaus	5	14
Total	**2, 476**	**3, 678, 682**

PERIODICALS*		
Nautical	628	2, 528, 974
Aeronautical	83	111, 457
Total	**711**	**2, 640, 431**

BROADCASTS	
Nautical	2, 035
Aeronautical	3, 004
Total	**5, 039**

MISCELLANEOUS		
Nautical	589	1, 989, 405
Air	113	18, 459
Oceanographic	25	6, 988
Other Bureaus	1, 154	223, 494
Total	**1, 181**	**2, 238, 346**

* *Includes items printed by Government Printing Office.*

APPENDIX IV

DISTRIBUTION SUMMARY

	Issued	Sold	Total issued and sold
CHARTS:			
Nautical:			
H. O. nautical	2, 126, 906	845, 610	2, 972, 516
H. O. reimbursables	570, 379	.....	570, 379
Coast and Geodetic Survey	287, 310	106, 627	393, 937
Miscellaneous (other agencies)	4, 612	550	5, 162
Total	**2, 989, 207**	**952, 787**	**3, 941, 994**
Oceanographic:			
H. O.	78, 522	2, 209	80, 731
Aeronautical:			
H. O. regular	486, 252	439, 439	925, 691
H. O. special air	3, 389, 454	.....	3, 389, 454
USAF regular	1, 933, 515	6, 414	1, 939, 929
USAF special air	245, 822	.....	245, 822
Coast and Geodetic Survey	1, 133, 619	1, 744	1, 135, 363
Miscellaneous (other agencies)	53, 565	.....	53, 565
Total	**7, 242, 227**	**447, 597**	**7, 689, 824**
Total charts	**10, 309, 956**	**1, 402, 593**	**11, 712, 549**
PUBLICATIONS:			
Nautical:			
H. O.	153, 347	91, 575	244, 922
Coast and Geodetic Survey	47, 914	14, 961	62, 875
Coast Guard	6, 675	1, 528	8, 203
Miscellaneous (other agencies)	2, 581	55	2, 636
Total	**210, 517**	**108, 119**	**318, 636**
Oceanographic:			
H. O.	19, 618	2, 445	22, 063
Aeronautical:			
H. O. regular	116, 643	5, 963	122, 606
H. O. special publications	1, 957, 141	.....	1, 957, 141
USAF regular	249, 691	56	249, 747
USAF special publications	17, 400	.....	17, 400
Miscellaneous (other agencies)	3, 383	8	3, 391
Civil Aeronautical Administration	15, 155	36	15, 191
Total	**2, 359, 413**	**6, 063**	**2, 365, 476**
Total publications	**2, 589, 548**	**116, 627**	**2, 706, 175**

PERIODICALS:

	Issued	Sold	Total issued and sold
Nautical:			
H. O.	1, 328, 369	13	1, 328, 382
Aeronautical:			
H. O.	90, 795	3, 506	94, 301
USAF	10, 621	.....	10, 621
Civil Aeronautics Administration	113, 420	1	113, 421
Miscellaneous (other agencies)	3, 674	.....	3, 674
Total	**218, 510**	**3, 507**	**222, 017**
Total periodicals	**1, 546, 879**	**3, 520**	**1, 550, 399**

APPENDIX V

BRANCH HYDROGRAPHIC OFFICES

Charts, Publications, and Periodicals Distributed

	Issued	Sold	Total 1952	Total 1951
Charts	148, 911	89, 390	238, 301	164, 721
Publications	8, 306	9, 950	18, 256	11, 517
Supplements to publications	10, 121	.....	10, 121	9, 594
Nemedri	12, 044	.....	12, 044	1, 997
Hydropacs	125, 518	.....	125, 518	96, 393
Notice to Mariners	290, 966	.....	290, 966	260, 253
Hydrographic Bulletins	49, 452	.....	49, 452	69, 522
Daily Memorandums	521, 117	.....	521, 117	651, 102
Miscellaneous items	9, 876	.....	9, 876	6, 372
Total	**1, 176, 311**	**99, 340**	**1, 275, 651**	**1, 271, 470**

Papers and Reports Distributed and Received

	Dist. 1952	Received 1952	Dist. 1951
Bottle papers	15, 523	15	15, 373
Route reports	7, 210	66	6, 788
Marine data reports	7, 485	810	7, 366
Port facilities	6, 668	80	60, 016
Current reports	12, 986	2, 687	11, 761
Intending observer	4, 129	1, 110	.....
Miscellaneous reports	3, 736	610	2, 386
Total	**57, 737**	**5, 379**	**103, 690**

Other Services

	1952	1951
Visitors received	41, 401	31, 534
Telephone inquiries	53, 052	38, 409
Vessels visited	4, 831	5, 180
Acknowledgments of information	2, 286	2, 609
Letters sent	11, 535	9, 297
Hydrographic broadcasts	2, 313	3, 723
Navigators instructed	3, 165	2, 310
Total	**118, 583**	**93, 562**

APPENDIX VI

CIVILIAN PERSONNEL ACTIONS

Total additions (appointments and transfers)		590
Deaths	8	
Leave without pay	3	
Transfers	37	
Removals	9	
Resignations	252	
Retirements	5	
Separations (abandonment of position)	1	
Separations (disqualification)	7	
Separation to accept indefinite appointment	32	
Separation to accept probational appointment	7	
Separation—military service	70	
Terminations	7	
Total separations		438
Net gain in Personnel—Period 1 July 1951, through 30 June 1952		152
Administrative pay increase	7	
Change to lower grade	16	
Change in title	76	
Continuation of pay rate	22	
Conversion to competitive status	1	
Conversion to four-step rate plan	77	
Conversion to transfer	1	
Details	7	
Extension of temporary appointment	1	
Longevity step increase	3	
Name change	20	
Pay adjustment	22	
Periodic pay increase (graded)	617	
Periodic pay increase (ungraded)	196	
Promotions (indefinite) Graded	680	
Promotions (indefinite) Ungraded	52	
Suspensions	7	
Reassignments	243	
Reassignments (indefinite)	209	
Total Personnel actions exclusive of additions and separations		2, 347
Total personnel with competitive status	850	
Total personnel with noncompetitive status	776	
Total personnel with temporary appointments	17	
Total civilian personnel on the rolls of the office and its field activities as of 30 June 1952		1, 643

The distribution of Naval and Civilian personnel under the jurisdiction of the Office at the beginning and ending of the year, is shown in the following table:

	1 July 1951			30 June 1952		
	Officer	Enlisted	Civilian	Officer	Enlisted	Civilian
Main office	24	4	1, 453	29	15	1, 587
Branch Hydrographic Offices	20	30	38	20	41	56
Total	44	34	1, 491	49	56	1, 643